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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,869	02/28/2002	Wai Yew Lo	SC11867MP	7744

23330 7590 12/19/2003

MOTOROLA, INC.  
CORPORATE LAW DEPARTMENT - #56-238  
3102 NORTH 56TH STREET  
PHOENIX, AZ 85018

EXAMINER
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CAO, PHAT X

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/085,869

**Applicant(s)**

LO ET AL.

**Examiner**

Phat X. Cao

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4, 5, 8-13 and 15-28 is/are pending in the application.
- 4a) Of the above claim(s) 19-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 8-13, 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. the cancellation of claims 3, 6-7 and 14 in Paper filed 9/8/03 is acknowledged.
2. This application contains claims 19-28 are drawn to an invention nonelected with traverse in Paper filed on 3/27/03. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Objections***

3. Claims 4 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In this case, claim 4 fails to further limit the subject matter of claim 1, and claim 15 fails to further limit the subject matter of claim 13.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-2, 4, 9-13, 15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Glenn et al (US. 2002/0195624).

Glenn (Figs. 7 and 8) discloses a stacked multichip package, comprising: a base carrier 12 having a top side and a bottom side, the top side including a plurality of first leads and a plurality of second leads 26 (see top view shown in Fig. 1); a bottom integrated circuit die 14 having a bottom surface attached to the base carrier top side, and an opposing, top surface, the top surface having a peripheral area including a plurality of first bonding pads and a central area, wherein the bottom die 14 is electrically connected to the base carrier with first wires 38, the first wires 38 having first ends electrically connected to the first bonding pads and second ends electrically connected to the first leads; a bead 40 of adhesive material (par. [0056]) formed on the top surface of the bottom die and having a portion formed between the peripheral area and the central area; an adhesive material (52,50,54) of epoxy resin (par. [0053]) formed in the central area on the top surface of the bottom die, the adhesive material being surrounded by the bead 40 (par. [0050]); a top integrated circuit die 16 having a bottom surface, wherein the top die 16 is the same size with or larger than the bottom die (par. [0055]) and is attached to the top surface of the bottom die 14 via the bead 40 and the adhesive material (55,50,52), and the bead 40 maintains a predetermined spacing between the bottom die and the top die (par. [0044]), and wherein the top die

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16 includes a plurality of second bonding pads 34 located in a peripheral area on a top surface thereof and wherein the top die 16 is electrically connected to the base carrier with second wires 38, the second wires 38 having first ends electrically connected to the second bonding pads 34 and second ends electrically connected to the second leads 26; and an encapsulant 60 (see Fig. 2) covering the first and second dies, the first and second wires and at least a portion of the top side of the base carrier.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 8 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glenn et al (US. 2002/0195624) in view of Glenn et al (US. 6,530,515).

Glenn ('624) does not disclose the bead 40 (Fig. 7) comprising epoxy. However, Glenn ('624) discloses the bead 40 comprising a wide variety of known types of adhesives (par. [0036]). Accordingly, it would have been obvious to form the adhesive bead 40 with epoxy because epoxy is a well known adhesive material which is used for providing the securing and the adhesion between the two stacked integrated circuit dies, as taught by Glenn ('515) (see epoxy bead 450 in Fig. 12 and column 6, lines 17-18).

***Response to Arguments***

8. Applicant argues that Glenn application ('624) does not suggest the invention as claimed because "the bead 124 of the present invention does not cover the bond wires or bottom die bond pads, as shown in Fig. 4. Second, the present invention does not separate the top and bottom dies with a spacer."

This argument is not persuasive because the limitation of having the bead not cover the die bond pads or having the top and bottom dies not separate with a spacer does not seem to be required by the claim language.

Applicant further argues that Glenn application ('624) does not suggest that "the bead is located between the peripheral area of the bottom die where the bond pads are located and the central area, and that the bead maintains a predetermined spacing between the bottom die and the top die."

This argument is not persuasive because Glenn application ('624) clearly discloses that the bead 40 (Fig. 7) or 42 (Fig. 8) covers the die bond pad 40 and has a portion located between the peripheral area of the bottom die where the bond pads are located and the central area, and that the bead 42 maintains a predetermined spacing between the bottom die and the top die for preventing shorting contact between the bottom surface of the top die and the conductive wires bonded to the wire bonding pads on the top surface of the bottom die (par. [0044]).

Applicant further argues that it is not obvious to combine Glenn patent ('515) with Glenn application ('624) because Glenn patent ('515) teaches the area within the bead being empty.

This argument is not persuasive because Glenn patent ('515) is not relied on for teaching the adhesive material being surrounded by the bead. Glenn application ('624) discloses the adhesive material being surrounded by the bead. Glenn patent ('515) is only relied on for showing that it was known to use epoxy for the bead because epoxy is a well known adhesive material for providing the securing and the adhesion between the two stacked integrated circuit dies (see epoxy bead 450 in Fig. 12 and column 6, lines 17-18).

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (571) 272-1703. The examiner can normally be reached on Monday - Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

PC  
December 12, 2003



PHAT X. CAO  
PRIMARY EXAMINER